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Biological
& Medical
Serials

VOL. X. No. 5. MARCH. 1917.

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TRANSACTIONS

OF

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE

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SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

MARCH, 1917.

VOLUME X. No. 5.

SOME OBSERVATIONS ON BRAZILIAN BERIBERI.

BY

JOHN W. LINDSAY, M.B., LIEUT. R.A.M.C.,

BELÉN, PARAGUAY.

Recently in conversation with a Brazilian doctor, Inspector of Ports for his Government, I asked him regarding the etiology of beriberi. He replied that the disease is due to the deficiency or absence of vitamines in diet, and especially in rice, so much so that steps were being taken to prohibit the importation of polished rice into the country. Questioned as to the disease known as beriberi in Matto Grosso and the Amazons, he replied that it is quite a different disease, being a "quinine-resisting form of paludism." Whether or not this represents the official theory of the Brazilian authorities I have not been able to ascertain. My own observations, however, and information obtained from various other sources, may be of sufficient interest as to merit consideration from those whose special work it is to investigate the etiology of such diseases.

I made special enquiries regarding the disease in the towns and districts of Corumba, and Cuyaba, the capital of the province. A Brazilian colleague, Dr. HORACIO HUIQUE, Medical Officer of the Military Hospital

of Corumba, sent me detailed information regarding the disease in his district:—

"Geographical distribution: the city of Corumba and neighbouring districts extending towards the Amazons and Bolivia.

"Locality: it occurs in low-lying districts, near lagoons, and along the course of and in the neighbourhood of rivers.

"The soil: the nature of the soil varies, but it is always in places liable to periodical inundations, or in places in the neighbourhood of swamps, even although not liable to inundation.

"The season of the year: mostly during the summer months, from November till March.

"The age and sex of patients: cases seen have been only in men, their ages being from 20 to 45.

"The occupation of the patients: they have been soldiers and sailors—soldiers who lived and fed in the barracks and were attacked there; sailors of the flotilla at Ladosio, who were attacked especially when living on board ship anchored at the riverside, it being necessary on more than one occasion to disembark the whole ship's company in order to fight effectually the epidemic.

"Conditions predisposing to the disease: overcrowding and poverty.

"Symptoms: generally the disease begins with fever; but the most constant initial symptoms mentioned by all the patients are pains in the lower limbs, numbness and powerlessness of the legs, and fatigue on the slightest exertion. There may be gastric disturbances. The symptoms of dropsy, loss of voice, and paralysis may appear very quickly, even within forty-eight hours in grave cases, or may develop more slowly in milder cases.

"Transmission of the disease: as regards insects, the only insect that seems constantly found in places attacked by beriberi is the mosquito Anopheles.

"The common food: rice, either imported or native grown and prepared, wheaten flour, flour of mandioca, meat (fresh or dried), and beans.

"Endemic districts: Corumba, Miranda, and many other special localities.

"The effect of change of climate: near Corumba, at a distance of twelve miles, is Urucum, which is high, bracing, and very dry, and the chief resort for beriberi patients from Corumba. The south of the State

and also the plateau of Campo Grande to the north-east have excellent climates for the cure of beriberi. It is worthy of note that all the places considered suitable for the cure of beriberi are at higher altitudes, and have dry bracing climates, the soil is dry and never subject to inundations, distant from swamps and from rivers with swampy margins."—(Report of Dr. HORACIO HUIQUE, Corumba.)

A beriberi patient from Matto Grosso gave me the following history. In 1895-96 he was living in Corumba, employed in a large business house in which there were thirteen employees in all. Ten of them were attacked with beriberi—at first two men, then one by one, until within a month ten of them had sickened. The chief symptoms were dropsy and paralysis. Some of the patients had to be carried on board the river-boats, others were able to walk down with the help of two sticks. They all went to higher altitudes and returned cured within two months, all except one who went to his home at Miranda, where beriberi is endemic, and died.

Their diet previous to their illness had consisted of meat, fowl, milk, white bread, vegetables, salads, fruit, native-grown rice, and maize. They drank the water of the river. The patients were all seen by the Brazilian doctor, Dr. ALEXANDER VALLE, who diagnosed the disease as beriberi.

The patient who related this story, Antonio P. Carvalho, had, after twenty years, a second attack of beriberi, and came under my care. Forty years old, a native of Cayuba, later resident at Corumba, where he had his first attack of beriberi, and now resident in the south-eastern corner of the State towards the basin of the Upper Parana, he fell ill on the 20th June, 1915, but was not seen by me until the beginning of August. His first symptoms were those of fever, and pains in the joints and epigastrium, numbness of the hands and feet, and swelling of the legs. Realising that he was seriously ill, he resolved to undertake the journey to the nearest Brazilian town of Punta Rora, and so, on the third day of his illness, he made his men carry him on a stretcher some fifteen miles to the house of a friend on the way to the town. Even this short journey was almost too much for him, and he had to remain there some three weeks. The fever lasted ten days in all, but the weakness and swelling continued. His legs were completely paralysed. He gradually

lost his voice, at first being unable to articulate the sounds of *r* and *l*, then gradually becoming completely aphonic. This aphonia lasted some eight or nine days and then his voice began to recover. He began to feel his feet and to be able to move them. He had become exceedingly weak and very anæmic. The improvement in his condition began from the time he left his friend's house, on the 16th July, and by the time he had covered the ninety miles to reach the town on the hills he was feeling remarkably well. Wishing, however, to make absolutely sure of a complete cure, he came on, 210 miles farther, to my place, arriving in a bullock cart on the 9th of August, fifty days after the beginning of his disease.

The patient was extremely emaciated and very anæmic. The left leg had begun to recover, and there was a certain amount of control over the foot. The knee reflex was completely absent. The right leg was completely paralysed and the knee-jerk absent. There was considerable numbness of the legs and hands. On several occasions, when trying to lift a glass to drink, he let it slip from his fingers. On one occasion, when he was feeling very much improved, in the absence of his servant he tried to take his medicine himself. He told me that he reached for the bottle, grasped it firmly—as he thought—by the neck, and raised it from the table, but it immediately slipped from his grasp and fell to the floor. The voice had not completely recovered. There was a dilatation of the right side of the heart, with systolic murmurs. There was no albumin in the urine. The feet were still swollen. The knee-jerk of the left leg was the first to return, and that of the right leg a month later. The heart condition was so critical that he was not allowed to rise until the middle of November During all the time he was in bed, his servant had massaged and moved his legs, so that when he was allowed to rise, he was able, within about a week to walk by himself. His gait, however, was for sometime slightly ataxic.

This patient's residence, where he had lived continuously for six months before he contracted his disease, was in the Yerba Matté virgin forests. From the same district many peones, or native labourers, come suffering from buba, or *Leishmaniasis americana*. The water used at his station was from a stream running towards the Parana valley. As manager of a plantation, the patient had been able to live in comfort, and feed well. His ordinary diet consisted of fresh meat every day, beans, rice, vegetables, fruit, mandioca, maize, bread. The patient was

a very abstemious man, and, besides, alcoholic liquors are not allowed on the plantations. The patient, recalling his earlier attack twenty years before, and the fact that he had recovered completely within a month and a half, did not agree with my diagnosis that his disease was beriberi, and, besides, no others were known to have suffered from such a disease in that district during the years he had been resident there. Two years previously, however, a case was brought to me from a place a few leagues distant from A. P. C.'s residence, suffering from the dropsical form and with a very bad heart. He unfortunately died shortly after he arrived. I have notes also of a case exactly similar to that of A. P. C., the patient coming from the same district in 1911. He took some six months to get well, and only began to shew marked improvement when he went down to Buenos Aires, a distance of some 1,500 miles. He returned from there completely cured.

I could obtain no history of any epidemic of a similar disease in the district from which these cases had come.

The patient, A. P. C., made an excellent recovery, and when he left was enjoying better health than he had done for many years.

SOME OBSERVATIONS ON AMERICAN LEISHMANIASIS AS A GENERAL INFECTION.

BY

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In a paper by Dr. GEORGE C. LOW on "A Case of Oriental Sore treated by *Antimonium Tartaratum* (Tartar Emetic), locally" *(Journal of Tropical Medicine and Hygiene*, Nov., 1915), the question is asked: Are these sores as strictly local as they have usually been believed to be? Recent observers have thrown doubt upon this, and the American leishmaniasis would seem clearly to shew that a general infection may follow. It is possible that the condition is general from the start, like kala-azar, and that the parasites circulating in the blood settle at different places and produce sores. Blows or abrasions might determine the point of lodgment."

The following histories are those of a dozen cases of American leishmaniasis seen recently in the routine of my practice in Paraguay:—

1. Antonio Recalde. Age 20 years; from the Yerbales or Yerba-Matté plantations; during the last fifteen days two ulcers had appeared, one on the upper left arm behind, and the other slightly below the umbilicus to the left.

2. Maximiono Pedroso. Age 28 years; from the Yerbales; three weeks previously an itching papule appeared in the leg, now it is an ulcer the size of half-a-crown.

3. Romon Rodriguez. Age 30 years; from the Yerbales: five months ago noticed a papule on the right arm; within sixteen days it was a typical buba ulcer. No nasal symptoms had appeared as yet.

4. José Leon. Age 20 years; from the Yerbales; for over a year has had a large buba ulcer two inches above the umbilicus, with nodular

lymphatic cords passing towards the sternum and right nipple. There are no signs of spontaneous healing, and no nasal symptoms.

5. Rufino Lescano. Age 25 years; from the Yerbales; three years ago one ulcer appeared above the right wrist; within three months other three ulcers had appeared above the original one in a line leading towards an enlarged gland at the elbow. The ulcers shew no signs of spontaneous healing, and there are no nasal symptoms.

I quote these cases, because, although the patients were not suffering in their general health in any way, yet the dread they have of the inevitable invasion (as they believe) of the nose and pharynx, makes all such patients seek medical help as soon as they can get leave from their employment.

The following are cases in which the naso-pharyngeal ulceration appeared at varying intervals after the appearance of the initial papule:—

6. Jose Colman. Age 25 years; from the Yerbales; three months ago two ulcers appeared on the right leg, and one on the left arm, and another to the right of the umbilicus; within two months the ulcers had healed spontaneously, but as they healed nasal symptoms began to appear and have increased.

7. Cecilio Ayala. Age 20 years; from the Yerbales; five months ago a buba papule and ulcer appeared on the right temple; the sore is now cicatrising spontaneously, but the naso-pharyngeal symptoms have appeared and progressed rapidly

8. Dolores Ayala. Age 35 years; from the Yerbales; six months ago ulcers appeared on the right forearm and left upper arm; these now shew signs of healing, but the nose and upper lip are already badly ulcerated.

9. Julian Medina. Age 27 years; from the Yerbales; had three healed ulcers in leg; these had appeared two years ago, and within a year began healing spontaneously; three months ago nasal symptoms began to appear, and now there is well marked ulceration of the nose and thickening of the soft palate.

10. Emidio Galeano. Age 34 years; from the Yerbales; seven or eight years ago had ulcers on right heel and left hand, which healed spontaneously in four years. In the third year the nose and throat became affected, and now are extensively ulcerated.

The two following cases may illustrate the theory that blows or abrasions may determine the point of lodgment :—

11. Lenon Cristaldo. Age 25 years; from the Yerbales; three years ago was in rather poor health, being very anæmic ; in this state he had a small accident, in which the dorsum of the right foot was wounded by a bamboo. The wound instead of healing, developed into a buba ulcer ; later, another ulcer appeared over the outer left ankle. Within one year the ulcers had healed spontaneously, but as they healed nasal symptoms appeared, and in the last two years there has been extensive invasion of the naso-pharynx.

12. Dionisio Vega. Age 24 years ; from the Yerbales ; five years ago his cart upset, and he was wounded on the right inner heel by the zinc roof of the cart. The wound did not heal but degenerated into a buba ulcer, involving the whole of the heel from the inner to the outer aspects. In four years the ulcer healed spontaneously, but about six months before it healed the nose began to be affected, and within a year the whole naso-pharyngo-laryngeal tract has become extensively invaded, the soft palate and uvula thickened and papillated. Over the heel there is a white cicatrix, 3½ inches long by 1 inch broad.

As will be seen from the histories of the cases given, there are great differences in the severity of the infection, the fulminant cases having the secondary ulceration appearing within a few months, the slower cases perhaps only after years.

All the severe cases agree in this, that, coincident with the beginning of spontaneous cicatrisation of the original sore, the secondary naso-bucco-pharyngo-laryngeal symptoms almost inevitably appear.

DIEMENAL IN THE TREATMENT OF MALARIAL FEVER.

BY

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[FROM THE LONDON SCHOOL OF TROPICAL MEDICINE.]

Recently a substance termed "Diemenal," a solution of "colloidal" manganese has been tried in the treatment of malarial fever. In a pamphlet which accompanies the samples of the drug, it is stated that "a number of observations made in the Colonial Hospital at Tamatave, Madagascar, proved that attacks of malarial fever yielded completely to treatment by 'Diemenal,' and the patients were usually discharged at the end of periods varying from eight to fourteen days. Patients so treated suffered no further attacks during their residence in the colony, often for periods as long as two years." It is also stated that if the drug is given during the febrile paroxysm it brings the temperature down to its normal state, and has the great advantage of preventing relapses.

The conclusion is reached that this form of colloidal manganese is a specific for malaria, and that it produces no undesirable effects.

The method of treatment is as follows:—"One injection of 10 cc. daily is given hypodermically for four to six days. After the second or third injection the temperature is normal and remains definitely so. The number of injections is, however, usually carried to six, bearing in mind the importance of immunisation. It is perfectly well tolerated, and the injections are painless."

In the pamphlet no mention is made of blood examinations to determine the effect of the drug on the parasites.

Recently, having procured a sample of the drug, I tried it in the

manner described above in a case of benign tertian malaria (single infection), the treatment being checked by careful blood examinations.

History of Case : O. L., a Dane, had been all over the world, following out his vocation as a sailor. Recently had been in Java, and had visited several of the coast towns. Twelve days after leaving the last of these, on the voyage home, developed fever. Others of the crew got it as well, and though quinine was administered, it was not evidently given in sufficient quantity, as most of the patients were still having attacks of fever on arrival in England. Five of these were admitted into the Royal Albert Dock Hospital, London School of Tropical Medicine, two being benign tertian infections, one a quartan, and two malignant. O. L. was one of the former, and had a temperature of 103° F., benign tertian parasites being found in his blood. He had never suffered from malaria before.

Systems : Nothing of importance. Liver and spleen not enlarged.

Urine : No albumin, blood or sugar.

Fæces : Negative : no protozoa, no ova.

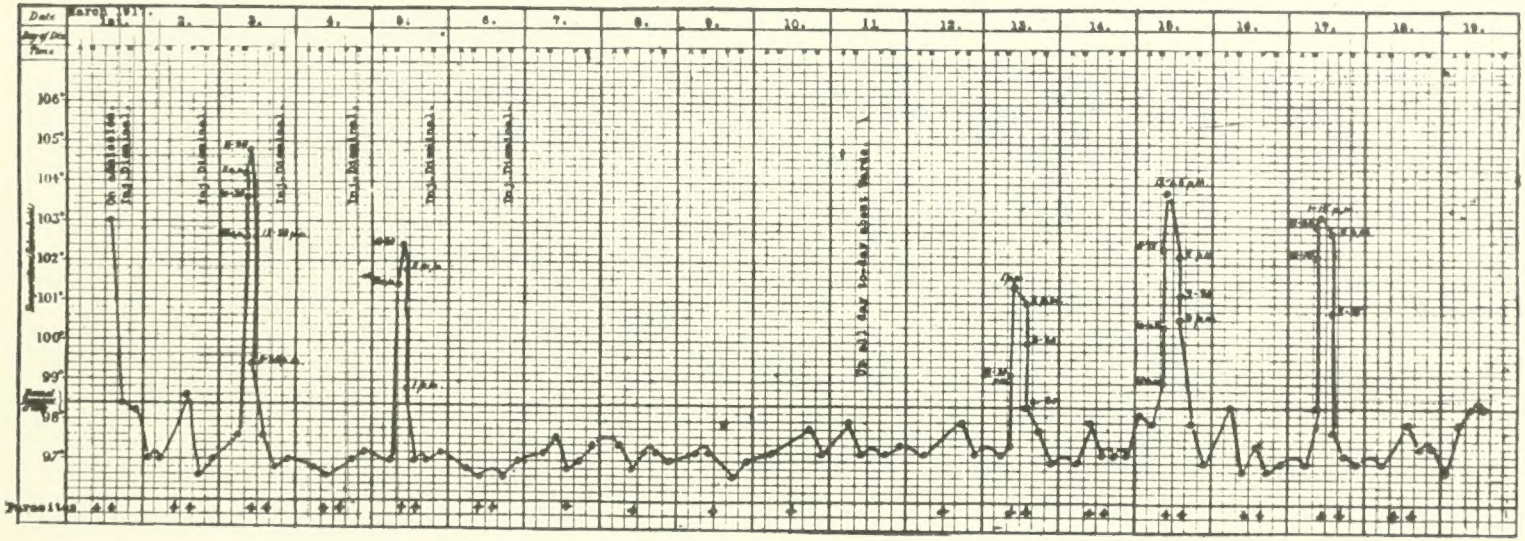
Blood : Benign tertian parasites, gametes and rings, one generation.

Treatment : This was begun at once, on the 1st March, 1917, daily doses of 10 cc. " Liemenal " being administered hypodermically for six days in all. These gave rise to no inconvenience. The patient was at the same time put to bed and kept warm. After the fifth injection the rise of temperature due on the 7th of March did not take place, but the blood examinations shewed that parasites were still present. As keeping such cases rigidly in bed often results in a fall of temperature, irrespective of any drug being given, the patient was ordered up to move about the wards. Rigors began again at once with an increase of the parasites in the blood.

After it was seen that the patient was not cured he was put upon quinine in the usual doses, this stopping further rises of temperature, and quickly causing the parasites to disappear from his blood.

The results of " Diemenal " on this form of malaria cannot, therefore, be said to be encouraging, and much more proof will be required before the statement that it is a specific for malaria can be accepted.

The following chart shews at a glance the temperature, the results of the blood examinations, and the treatment :—



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